ABSTRACT

The present invention provides a novel polypeptide producing (S)-N-benzyl-3-pyrrolidinol, a DNA coding for it and a method of using them.

A polypeptide having the following physicochemical properties (1) to (5):

(1) Action: It asymmetrically reduces N-benzyl-3-pyrrolidinone to produce (S)-N-benzyl-3-pyrrolidinol with NADPH as a coenzyme;

(2) Optimum action pH: 4.5 to 5.5;

(3) Optimum action temperature: 40°C to 45°C;

(4) Molecular weight: About 29,000 as determined by gel filtration analysis, about 35,000 as determined by SDS-polyacrylamide gel electrophoresis analysis;

(5) Inhibitor: It is inhibited by the divalent copper ion.

Further, a polypeptide having the amino acid sequence shown under SEQ ID NO:1 in the sequence listing; or

a polypeptide having an amino acid sequence obtainable from the amino acid sequence shown under SEQ ID NO:1 in the sequence listing by substitution, insertion, deletion and/or addition of one or more amino acids and having enzyme activity in asymmetrically reducing N-benzyl-3-pyrrolidinone to produce (S)-N-benzyl-3-pyrrolidinol.